

CLAIMS

1. A method of producing an oil-in-water type emulsion containing an internally crosslinked fine resin particle,
5 wherein the fine resin particle is encapsulated in a emulsion particle having an average particle diameter of 0.02 to 0.3 μm , comprising of a step of undergoing phase transition from a water-in-oil type emulsion (Y) comprising of a resin (A) having a cationic group or an anionic group, an acid or a base
10 (B) neutralizing 20 to 150 mole percent of the cationic group or the anionic group in the resin (A), an internally crosslinked fine resin particle (C), having an average particle diameter of 0.01 to 0.2 μm , dispersed in an oil phase and an aqueous medium (D) to an oil-in-water type emulsion (Z) by adding the aqueous
15 medium (D) further to the water-in-oil type emulsion (Y).

2. The method of producing an oil-in-water type emulsion containing an internally crosslinked fine resin particle according to Claim 1,

20 wherein the water-in-oil type emulsion (Y) is obtained through

 a step (1-1) of neutralizing the resin (A) by mixing the resin (A) with the acid or base (B) neutralizing 20 to 150 mole percent of the cationic group or anionic group in the resin (A),
25 and

 a step (1-2) of mixing the neutralized resin (A) obtained through the step (1-1) with water dispersion (W) of the internally crosslinked fine resin particle (C) having an average particle diameter of 0.01 to 0.2 μm to form the
30 water-in-oil type emulsion (Y).

3. The method of producing an oil-in-water type emulsion containing an internally crosslinked fine resin particle according to Claim 1,

35 wherein the water-in-oil type emulsion (Y) is obtained

through

a step (2-1) of mixing the water dispersion (W) of the internally crosslinked fine resin particle (C) having an average particle diameter of 0.01 to 0.2 μm with the acid or
5 base (B) neutralizing 20 to 150 mole percent of the cationic group or anionic group in the resin (A) to form a dispersion (V) of the internally crosslinked fine resin particle, and

a step (2-2) of mixing the dispersion (V) obtained through the step (2-1) with the resin (A) to form the water-in-oil type
10 emulsion (Y).

4. A method of producing an oil-in-water type emulsion containing an internally crosslinked fine resin particle, wherein the fine resin particle is encapsulated in a emulsion
15 particle having an average particle diameter of 0.02 to 0.3 μm , comprising of a step of forming an oil-in-water type emulsion (Z) by adding an aqueous medium (D) to an oily medium (X) comprising of a resin (A) having a cationic group or an anionic group, an acid or a base (B) neutralizing 20 to 150 mole percent
20 of the cationic group or the anionic group in the resin (A) and an internally crosslinked fine resin particle (C), having an average particle diameter of 0.01 to 0.2 μm , dispersed in an oil phase.

25 5. The method of producing an oil-in-water type emulsion containing the internally crosslinked fine resin particle according to any Claims 1 to 4,

wherein a hydrophobic resin (H) is further dispersed or dissolved in an emulsion particle of the oil-in-water type
30 emulsion containing the internally crosslinked fine resin particle further.

6. The method of producing an oil-in-water type emulsion containing an internally crosslinked fine resin particle
35 according to Claim 2,

wherein the step (1-1) further include a step of adding a hydrophobic resin (H).

7. An oil-in-water type emulsion containing a internally crosslinked fine resin particle, which comprises of an epoxy resin (A-1) having a cationic group, a blocked isocyanate (H-1) and/or a melamine resin (H-2) and a internally crosslinked fine resin particle (C) having a particle diameter of 0.01 to 0.2 μm , said internally crosslinked fine resin particle (C) being in an oil phase.

8. The oil-in-water type emulsion containing the internally crosslinked fine resin particle according to Claim 7,

wherein 20 to 150 mole percent of the cationic group in the epoxy resin (A-1) is neutralized with acid.

9. The oil-in-water type emulsion containing the internally crosslinked fine resin particle according to Claim 7 or 8,

wherein the internally crosslinked fine resin particle (C) is contained in an amount of 1 to 100 weight percent of the epoxy resin (A-1).

10. The oil-in-water type emulsion containing the internally crosslinked fine resin particle according to Claim 8 or 9,

wherein the blocked isocyanate (H-1) and/or the melamine resin (H-2) is contained in an amount of 10 to 50 weight percent of the epoxy resin (A-1).

11. The oil-in-water type emulsion containing the internally crosslinked fine resin particle according to any Claims 7 to 10,

wherein the oil-in-water type emulsion containing the

internally crosslinked fine resin particle has an emulsion particle diameter of 0.02 to 0.3 μm .

12. A cation electrodeposition coating composition
5 comprising of at least the oil-in-water type emulsion containing the internally crosslinked fine resin particle according to Claims 7 to 11 and a paste in which a pigment is dispersed.

10 13. A coated substance obtained by electrodeposition coating of the cation electrodeposition coating composition according to Claim 12.

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